

I/WE CLAIM

1. In a dishwasher including a tub having bottom, opposing side, rear and top walls which collectively define a washing chamber adapted to receive and cleanse soiled kitchenware by spraying washing fluid onto the kitchenware from at least one wash arm, a pump and drain assembly comprising:

- a housing mounted at an opening provided in the bottom wall of the tub, said housing including an intake chamber and a pumping chamber;

- a pumping unit arranged in the pumping chamber, said pumping unit including an impeller for directing washing fluid to the at least one wash arm;

- a conduit leading from the housing and fluidly interconnecting the pumping chamber with the at least one wash arm;

- a filter chamber adapted to receive washing fluid and entrap soil particles from the washing fluid in the filter chamber while permitting cleansed washing fluid to be directed back into the washing chamber, said filter chamber including an exit port;

- a drain exposed to the filter chamber;

- a drain pump fluidly connected to the drain for selectively performing a drain operation;

- a collection chamber having an inlet portion fluidly connected to the filter chamber and an outlet portion open to the drain, said collection chamber receiving the soil particles;

- a flapper valve operatively positioned between the washing chamber, the filter chamber and the drain for regulating flow to the drain from the washing chamber; and

a sealing member arranged at the exit port of the filter chamber for selectively sealing the filter chamber from the drain during portions of the drain operation.

2. The pump and drain assembly according to claim 1, wherein the flapper valve includes an upper rim portion and a plurality of flaps extending from the upper rim portion into the collection chamber.

3. The pump and drain assembly according to claim 2, wherein the flapper valve includes a plurality of distinct flaps, each of said flaps selectively sealing an opening extending between the washing chamber and the collection chamber.

4. The pump and drain assembly according to claim 2, further comprising: a sealing chamber having an inlet portion open to the exit port of the filter chamber and an outlet portion open to the inlet portion of the collection chamber, said flapper valve being positioned at the outlet portion.

5. The pump and drain assembly according to claim 4, wherein the upper rim of the flapper valve extends into the sealing chamber.

6. The pump and drain assembly according to claim 4, wherein the sealing member constitutes a check ball arranged in the sealing chamber, said check ball being adapted to seal against the upper rim portion of the flapper valve during select portions of the drain operation.

7. The pump and drain assembly according to claim 6, wherein the check ball is buoyant.

8. In a dishwasher including a tub having bottom, opposing side, rear and top walls which collectively define a washing chamber adapted to receive and cleanse soiled kitchenware by spraying washing fluid onto the kitchenware from at least one wash arm, a pump and drain assembly comprising:

- a housing mounted at an opening provided in the bottom wall of the tub, said housing including an intake chamber and a pumping chamber;

- a pumping unit arranged in the pumping chamber, said pumping unit including an impeller for directing washing fluid to the at least one wash arm;

- a conduit leading from the housing and fluidly interconnecting the pumping chamber with the at least one wash arm;

- a filter chamber adapted to receive washing fluid and entrap soil particles from the washing fluid in the filter chamber while permitting cleansed washing fluid to be directed back into the washing chamber, said filter chamber including an exit port;

- a drain exposed to the filter chamber;

- a drain pump fluidly connected to the drain for selectively performing a drain operation;

- a collection chamber having an inlet portion fluidly connected to the filter chamber and an outlet portion open to the drain, said collection chamber receiving the soil particles;

a flapper valve operatively positioned between the washing chamber, the filter chamber and the drain for regulating flow to the drain from the washing chamber; and

means for sealing the inlet portion of the collection chamber during select portions of the drain operation.

9. The pump and drain assembly according to claim 8, further comprising: a sealing chamber having an inlet open to the exit port of the filter chamber an outlet open to the inlet portion of the collection chamber and a central cavity, said sealing means being arranged within the central cavity.

10. The pump and drain assembly according to claim 9, wherein the flapper valve includes an upper rim portion and a plurality of flaps extending from the rim portion into the drain, said upper rim portion partially extending into the sealing chamber.

11. The pump and drain assembly according to claim 10, wherein the sealing means engages with the upper rim of the flapper valve during select portions of the drain operation to close off the filter chamber from the collection chamber.

12. The pump and drain assembly according to claim 11, wherein the sealing means is a check ball.

13. A method of operating a dishwasher comprising:
drawing washing fluid from within a washing chamber defined in a tub of the dishwasher into a pump housing;

initially entrapping soil items prior to directing the washing fluid to a pumping unit;

pumping at least a majority of the washing fluid to upper and lower wash arms for spraying onto kitchenware being washed in the dishwasher;

diverting a portion of the washing fluid into a filter chamber having a filtering screen through which cleansed washing fluid is permitted to flow back into the washing chamber while soil in the portion of the washing fluid is trapped in the filter chamber;

collecting soil particles from the filter chamber into a collection chamber;

performing a drain operation by activating a drain pump to initially cause soil particles in the collection chamber and the filter chamber, along with washing fluid, to be diverted to a drain;

sealing the filter chamber;

draining the washing fluid from the washing chamber; and

unsealing the filter chamber to allow additional washing fluid and soil particles to travel to the drain.

14. The method of claim 13, wherein the washing chamber is drained by deflecting legs of a flapper valve following sealing of the filter chamber.

15. The method of claim 14, further comprising: deflecting the legs of the flapper valve into the collection chamber.

16. The method of claim 14, wherein the filter chamber is sealed with a check ball which seats against an upper rim of the flapper valve.

17. The method of claim 13, wherein the filter chamber is unsealed upon ingesting air into the drain pump.